OBITUARY.

The Council regret that they have to announce the loss by death of the following Fellows and Associates during the past year:—

Fellows:—G. P. Bidder.
Rev. Henry Collins.
T. G. E. Elger.
G. R. Farncombe.
A. H. Howe.
George Hunt.
J. H. Jones.
J. R. Jones.
Thomas Keig.
Rev. Thomas Mackereth.
S. H. Parkes.
Sir John Pender.
W. L. Sutton.
Sidney Waters.

Associates:—B. A. Gould.
Hugo Gyldén.
Adalbert Krueger.
Axel Möller.
H. A. Newton.
F. F. Tisserand.

[The names of Fellows who have died between December 31 and the date of the annual meeting are included in the above list, but omitted in the count given in the table at the commencement of the Report.]

GEORGE PARKER BIDDER was born 1836 August 18 in London. He was the eldest son of George Parker Bidder, C.E. (President 1860 and 1861), one of the leading engineers of the middle of the century, and known from boyhood for his powers of mental calculation. Mr. Bidder, the son, attained distinction in mathematics at the Universities, first of Edinburgh, and then of Cambridge (where he was scholar of Trinity College, and Seventh Wrangler in 1858): he was called to the Bar at Lincoln's Inn in 1860, joining the Home Circuit. His success was very rapid, so that in 1874 he took silk, and for

1897MNRAS..57R.208.

the last fifteen years of his life had one of the largest practices at the Parliamentary Bar. The Forth Bridge Bills, the Tay Bridge Enquiry, and the Manchester Ship Canal Bills, are probably best known to the public among the more important cases which achieved his reputation. He was, perhaps, most sought after where it was necessary to meet a heavy array of expert evidence; this his naturally scientific mind and his mathematical training enabled him to dissect with a merciless thoroughness that discomposed all but the most candid and able witnesses. Without doubt he was greatly aided by the inheritance to some degree of the faculty of mental calculation; though by no means commensurate with that of his father, it was sufficiently above the average to give him a great advantage in tracing the various figures given in evidence to their natural, and often impossible, consequences. His mind was stored with formulæ and constants adapted to the rough estimation of quantities of all kinds, from the figures in the *Nautical Almanac* to those in a builder's estimate. The construction and testing of such formulæ, as also of purely numerical theorems, were among his favourite recreations.*

Mr. Bidder was elected Fellow of the Royal Astronomical Society on 1868 January 10, and was for many years a constant attendant at the meetings. He had a 7½-inch refractor mounted for him by Browning, and for some ten years worked seriously at the measurement of double stars. For this purpose he invented a position micrometer (described in the *Monthly Notices*, vol. xxxiv. p. 394) in which he measured with the images of the illuminated wires, the actual wires not being seen by the observer. He always afterwards used this instrument, and maintained that his measurements showed a far higher degree of accuracy with it than was possible with the ordinary form.

He wrote more than once advocating the theory that the tail of a comet is an optical effect due to lenticular action of the cometary matter on the Sun's rays, a theory in which he found he had been anticipated by a writer early in the century (see *The Times*, 1874 July 24). He was Associate of the Institution of Civil Engineers (where he obtained the Manby Premium, in 1861, for a paper on "The National Defences"), and of the Surveyors' Institution. Mr. Bidder married, in 1860, Anna, daughter of Mr. J. R. McClean, M.P., F.R.S., President of the Institution of Civil Engineers for 1864–5, and Fellow of the Royal Astronomical Society (see Obituary, for 1873), and leaves three sons and four daughters. He resided at Ravensbury Park, Mitcham, and Queen Anne's Mansions, Westminster.

Among a very wide circle of acquaintances there were few that might not have been called friends. Personally he was

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* A note by Mr. Bidder on the mental calculation of logarithms will be found in a paper by Dr. W. Pole, in *Minutes of Proceedings, Inst. C.E.*, vol. ciii. p. 250.

1897MNRAS..57R.208.

remarkable for his strength both of body and character, allowing himself neither to be checked nor daunted by any opposition but that of his own principles, which were high and unbending. Yet he was of a tender and loving nature, and singularly light-hearted.

He died at Queen Anne's Mansions on 1896 February 1, of a clot of blood in the heart, the effects of an accident three weeks previously. He died in full success and full vigour, suddenly and painlessly.

[For the above notice the Council is indebted to his son, Mr. George P. Bidder.]

The Rev. HENRY COLLINS was born at Burslem, Staffordshire, 1830 February 16. He was vicar of Ellerton Priory, near Wheldrake, York, from 1870 June to 1888 December; and rector of Elvington, York, from the latter date till his death. He was of a nervous and retiring disposition, and devoted much time to reading. He married (1859 May 5) Mary Ann, daughter of the late Mr. William Wells, of Kenninghall, Norfolk, and leaves no issue. He died at Elvington Rectory on 1896 March 14. He was elected a Fellow of this Society on 1876 January 14.

THOMAS GWYN EMPY ELGER was born at Bedford in 1837, where the family had been established for several generations. His grandfather was Mayor of the town in 1802, and his father, an architect and builder, had three times filled that office. Thomas Elger was educated at the Bedford Grammar School, and afterwards went to University College, London, where he was a pupil of De Morgan. He adopted the profession of a civil engineer, and under Mr. (now Sir John) Fowler, he was engaged in several important works, including the Metropolitan Railway and the Severn Valley Railway. Afterwards he was engaged in surveys for railway construction in Holstein, until the work was put a stop to by the war with Prussia and Austria in 1864.

Having succeeded to his property, he relinquished the active pursuit of his profession, and devoted himself more fully to scientific studies. At an early age he had showed a strong taste for astronomy, and as a youth had constructed a telescope which served him many years later. He erected his first observatory in Caldwell Street, Bedford, where he settled with his mother. In 1880 he married, and removed to Kempston, near Bedford, where he set up an observatory in his garden, with a 4-inch refractor by Cooke, and an $8\frac{1}{2}$-inch reflector by Calver. About eight years ago he built a house in Shakespeare Road, Bedford, in which he lived till his death.

Mr. Elger's first communication to the Royal Astronomical Society, of which he was elected a Fellow on 1871 Feb. 10, was a brief note on the colours of the components of the double-star γ *Delphini*; and this was followed by observations of *Venus*, in 1873. He also gave in the *Monthly Notices* the results of a series of observations of *Saturn*, in 1887 and 1888, specially calling